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The following information is taken from the documentation as supplied by the applicant.

54 Device for pulling off a wide tape adhered to a surface .

57 Constructing a device to pull off an adhesively adhered wide tape or similar, especially pressure sensitive tapes from a surface and for coiling the tape on a core (13) it is contemplated, to construct a simple and manually operated pull-off device, where a hollow winding core (13) is pushed over an axle (2) and where there between the axle (2) and the coiling core is a slip- coupling (10, 11), where there at least at one end (4) of the axle is a lever (7) solidly attached to apply a rotating force to the axle, such that when the axle is rotated in one direction a rotating moment is transferred through the coupling to the core in the coiling direction (I), and where when the axle is rotated in the other direction (II) the axle can release within the coiling core.

In using the device, first an end of the tape is pulled off manually by suitable means, and then it is wound up on the core. Then the tape is loosened from the surface and wound up on the coiling core by a continuous motion of the lever back and f rth.

Description

The invention is directed towards a device to pull off an adhesively adhered wide tape or similar, especially pressure sensitive tapes from a surface and for coiling the tape on a core.

From DE 195 30 755 is known a process for applying a pressure sensitive tape for protection against graffiti and the like to buss and vehicle walls. These tapes must be removed from the wall after a certain period of time in the simplest and most economical way.

In DE 197 40 585 a pull-off device is proposed, where a driven coiling element, which can be moved along the wall and has an axle essentially parallel to the wall, pulls off the tape under an angle and coils it on a core while the device is moved along the wall.

It has been found in the mean time, that there is need for a simpler constructed pull-off device.

It is then the purpose of the present invention to create a simple manually operated pull-off device.

This task is accomplished by pushing the hollow coiling core over an axle, where there between the axle and the coiling core is a slip-coupling, where there, at least at one end of the axle, is a lever solidly attached to apply a rotating force to the axle, such that, when the axle is rotated in one direction, a rotating moment is transferred through the coupling to the core in the coiling direction, and where, when the axle is rotated in the other direction, the axle can release within the coiling core.

By the invention device tapes and similar can be removed in strips corresponding to the width of the core used in the device or to the tape width.

Of course the device can be constructed variably with respect to coiling core length and diameter. Altogether, it has to be dimensioned such, that it is possible for a single person to operate the device.

The device can be easily handled by one person also, because the device is supported by the wall from which the adhered foil is pulled, so that the person can operate the lever with both hands.

It is of further advantage, that the device can be applied at different angles between vertical and horizontal.

The winding core is generally of cardboard of a suitable width.

The sub-claims 2-5 include advantageous forms of the devise.

A design of the invention pull-off devise is now further explained by

the attached figures. It is shown:

Fig.1 a perspective drawing of a device in its working position on a surface (part through cut) and

Fig. 2 an end view of the axle with the coupling elements as inserted along the axis.

For the in Fig.1 shown pull-off device 1, the axle 2 consists of a hollow cylinder 3 which is closed at its ends 3a and 3b by flanges 4. The flanges are preferred screwed to the ends. On the outside of the flanges there is a centrally positioned take-up rod 5 and at radial distance from the rod 5 a tapped drill hole 6a is present.

To apply a rotational force to the axle, a U-shaped lever 7 is present, the legs of which 7a and 7b are positioned at the outside of the flanges 4 and which connect through a holes 8 to the take-up rods 5. Further each leg has a hole 9 aligned with the tapped hole 6a through which a screw 6a can be screwed into the tapped hole 6a. One could think of other holding schemes which could be disconnected between the lever 7 and the axle 1.

As shown in Fig. 1 and 2 the outer surface of the hollow cylinder 3 has two oppositely placed grooves 10. These have in cross-section a radially positioned contact plane 10a, a right angle to 10a extending base plane 10b and a plane 10c at an angle.

As specifically shown in Fig. 2, the grooves 10 hold elongated elastic couplings pieces of rubber rod. These coupling pieces with their bend around ends 11a are positioned at the face sides 3a or 3b of the longitudinal grooves 12 and are held in position by the flanges. The groves do have a U-shaped cross-section. The radius of the bent base is matched to the radius of the rubber rod .

In some cases it might be sufficient to have one groove 10 and one coupling element 11. But it is possible to have more than two grooves in regular distribution around the circumference of the axle.

Also the cross-section of the groove can vary from the one described for 10. It is only essential, that the the geometry is such, that the coupling element can be wedged by the angular surface and released there from.

The device is operated as follows:

From the wall of a railroad car a pressure sensitive tape F is to b pulled off. The tape is pulled loose at its right end in Fig. 1 to the extent, that a sufficient length of tape can be wound upon the coiling core 13.

Then it is possible, by swinging the lever 7 in the direction 1 in Fig. 1 to wedge the round rubber coupling elements 11 between the axle 2 and the inner surface 13a of the coiling core 13, thereby pushing the the couplings elements from the position to the upper left as shown in Fig. 2 to the right side position against the angular surface 10c.

The deformation of the elastic couplings elements is shown in Fig. 2 to the upper right. Below to the left the undeformed cross-section of the round rubber element is shown at its contact with the plane 10a.

By moving the lever 7 the motion is transferred through the axle 2 to the coiling core 13, whereby the coiling core 13 rolls over the wall W and thereby pulls off the tape from the wall W.

By moving the lever 7 in direction II the couplings elements 11 in the groove 10 are moving in direction of the wall 10a and thereby release from the grip with the inside of the coiling core, so that the lever 7 can be moved back without rotation of the coiling core.

By using elastic rods as couplings elements 11, it is assured, that the free back rotation is generally independent of gravity, so that the device can be operated in any direction on the wall W.

Patent claims

1. A device to pull off an adhesively adhered wide tape or similar, especially pressure sensitive tapes from a surface and for coiling the tape on a core, recognized by the feature, that the hollow winding core (13) is pushed over an axle (2) and where there between the axle (2) and the coiling core is a slip- coupling (10, 11), where there at least at one end (4) of the axle is a lever (7) solidly attached to apply a rotating force to the axle, such that, when the axle is rotated in one direction a rotating moment is transferred through the coupling to the core in the coiling direction (I), and where when the axle is rotated in the other direction (II) the axle can release within the coiling core.

2. A device according to claim 1, recognized by the feature, that a principally U-shaped lever (7) is connected detachable to the two ends (7a, 7b) of the axle (2).

3, A device according to claim 1 or 2, recognized by the feature, that the slip- coupling consists of a longitudinal groove (10) along the surface of the axle (2,3), which has one angular surface (10c) and which grove contains an elastic coupling element (11), that grips

when it connects to the inside (13a) of the coiling core (13) .

4. A device according to at least one of the claims 1-3, recognized by the feature, that the elastic coupling element is a rubber rod.

5. A device according to at least one of the claims 1-4, recognized by the feature, that the axle (1) consists of a hollow cylinder (3) and has two flanges (4) which close the two ends (3a, 3b) of the hollow axle and where the ends of the elastic coupling elements (11a) are held at the face sides by the flanges (4).

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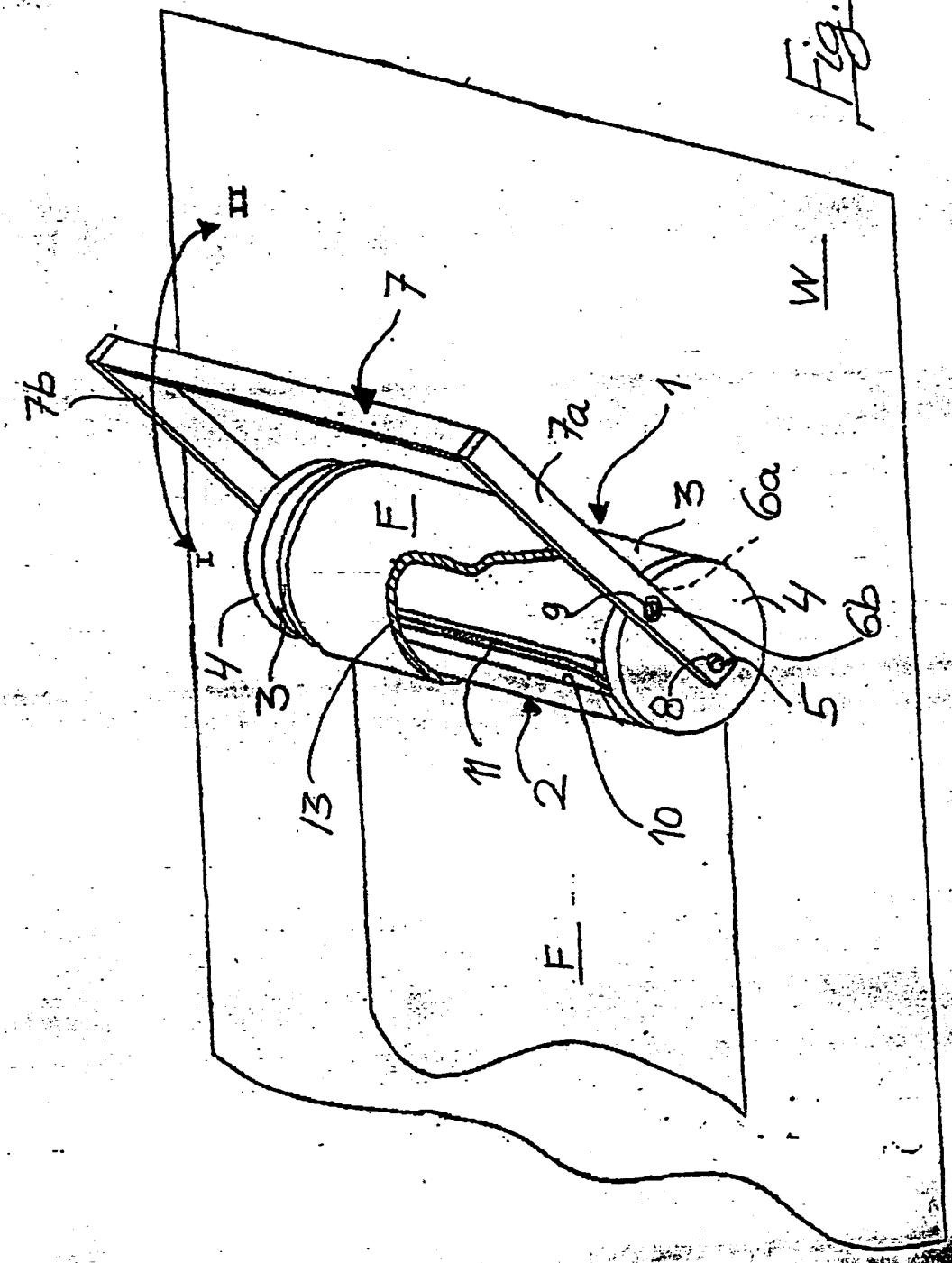
Fig. 1



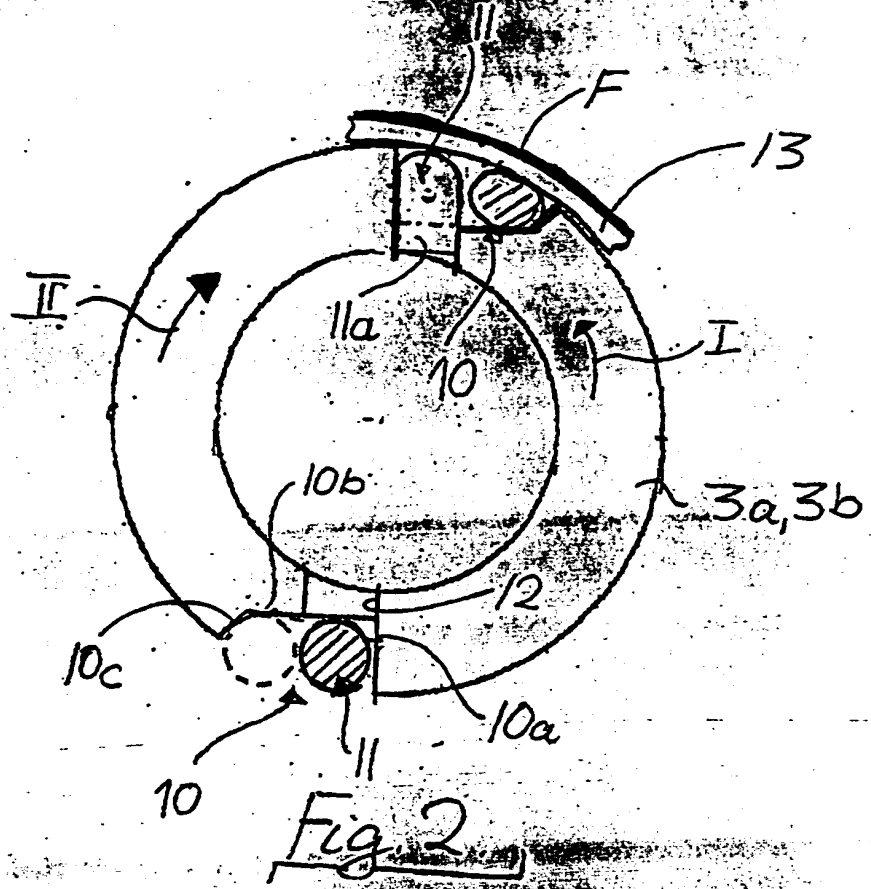


Fig. 2